181st INF BDE
Combat Lifesaver Plus

Burns

Overview

Basic anatomy and functions of skin

- Epidermal, dermal layers and structures

Severity of burns

- Appearance, depth, extent
- Extent of burn using Rule of Nines

Complications and management:

- Thermal, chemical, and electrical burns
- Carbon monoxide poisoning and inhalation injury

Burns

Safety is extremely important.

- Scene Size-up, rescue or removal

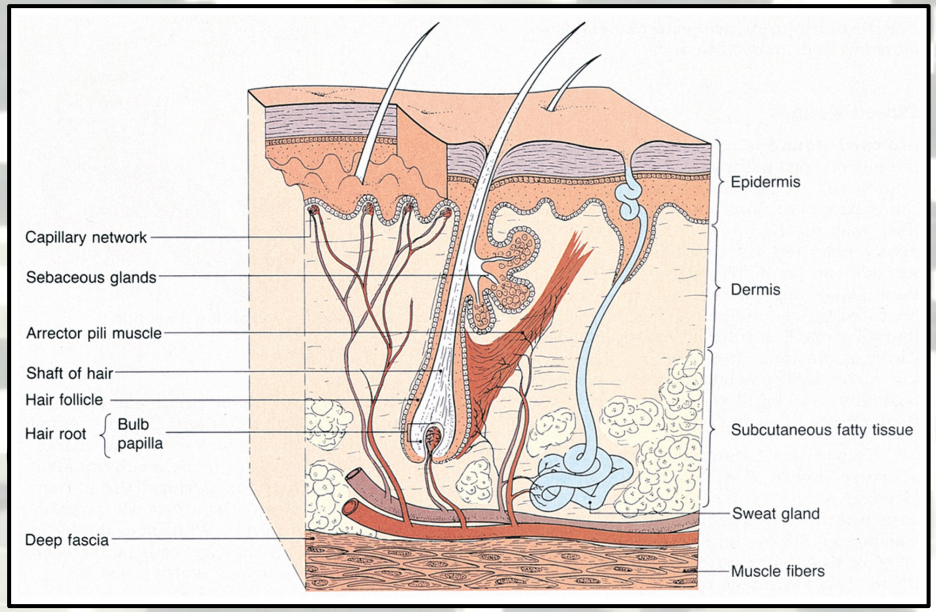
Multiple agents cause burn injuries.

Functions of Skin

Largest organ

Functions:

- Protective barrier
- Sensory organ
- Temperature regulati



Burn Classification

Depth of burn

- Superficial (first degree)
- Partial-thickness (second degree)
- Full-thickness (third degree)

Extent of burn

- Rule of Nines
- Palmar surface

Burn Depth

Superficial

- Minor tissue damage to outer epidermal laye
- Intense and painful inflammatory response
- “Sunburn”

Management

- Symptomatic treatmen

Burn Depth

Partial-thickness

- Entire epidermis into variable depth of dermi
  - Usually no scarring

Management

- Cool burn and cover with clean dry dressing

Burn Depth

Full-thickness

- Epidermis and dermi
  - Scars contract, limit motion
- Deeper full-thickness
  - “Leather-like” eschar

Management

- Moist sterile dressing

Burn Depth

Courtesy of Roy Alson, MD

Burn Depth

Burn Types

Flash burn

- Source is explosion, not sustained fire
- Superficial or partial-thickness to exposed skin
  - Full-thickness (rare)

Associated symptoms

- Explosion trauma
  - Fractures
  - Internal injuries
  - Blast chest injuries

Chemical Burns

Courtesy of Roy Alson, MD

Chemical Burns

Burn Types

Electrical burns

- Heat generated by passage of current
- Extremities greater risk of injury

Mechanism

- Path of current through body
- Duration of contact with current source

Electrical Burns

Management

- Rapid transport
- IV access
  - Fluid administration needs often higher than thermal

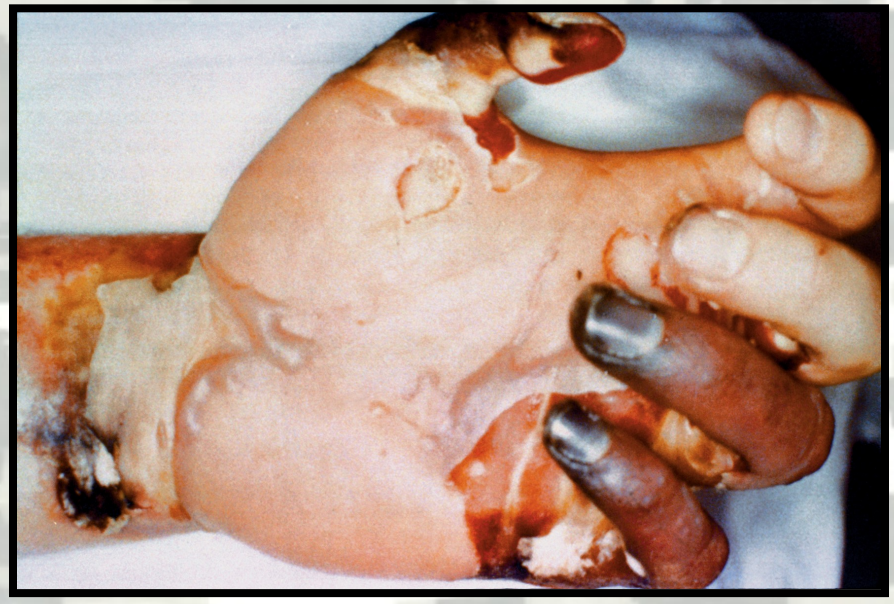
Electrical Burns

Electrical Burns

Courtesy of David Effron, MD

Courtesy of Bonnie Meneely, EMT- P

Electrical Burns



Burn Types

Lightning injury

- Extreme voltage
- Short duration

Mechanism

- Direct contact
- Indirect contact

Associated symptoms

- Superficial and partial-thickness burns
- Cardiopulmonary arrest

Lightning Injury

Burn Types

Pediatric burns

- Greater severity
  - Thinner skin, larger surface area to body mass ratio

Mechanism

- Accidental
- Child neglect or abuse
  - Match object shapes
  - Clear lines without splatter or splash
  - History does not match developmental age

Summary

Safety is essential

Early deaths are due to airway compromise

Limit progression of depth and extent

Careful, systematic approach:

- Identify and manage critical life-threatening problems to improve patient outcome

Questions?